

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
690 Walnut Ave.St. 150  
Vallejo, CA 94592-1133  
(707) 649-5453  
(707) 649-5493

Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 13.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-007253**Date Inspected:** 16-Jun-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** Oregon Iron Works Clackamas, Or.**Location:** Clackamas, OR**CWI Name:** Mike Gregson, Rob Walters**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Hinge K Pipe Beams**Summary of Items Observed:**

The Quality Assurance Inspector Sean Vance arrived on site at Oregon Iron Works, Inc (OIW) in Clackamas, OR, to randomly observe the in process welding of the Hinge K Pipe Beam assemblies. The QA Inspector arrived on site to randomly observe the OIW Quality Control (QC) Inspectors in process and completed visual and nondestructive testing. Upon the arrival of the QA Inspector the following observations were made:

OIW Fabrication Shop-Bay 3

Hinge-K Pipe Beam Assembly 102A-1: 6/16/09

a111-1 Forging to a110-1 Base Plate

QA Inspector noticed that the critical weld repair (CWR-003 Rev. #1) had been previously completed and was sitting idle.

Hinge-K Pipe Beam Assembly 102A-2: 6/16/09

a111-2 Forging to a110-2 Base Plate

QA Inspector noticed this assembly 102A-2 was sitting idle, with a pending non-critical weld repair.

Hinge-K Pipe Beam Assembly 102A-3: 6/16/09

a111-3 Forging to a110-3 Base Plate

QA Inspector noticed this assembly 102A-3 was sitting idle, with a pending non-critical weld repair.

---

## WELDING INSPECTION REPORT

( Continued Page 2 of 4 )

---

Hinge-K Pipe Beam Assembly 102A-4: 6/16/09

a111-4 Forging to a110-4 Base Plate

QA Inspector noticed this assembly 102A-4 had been previously placed in position and welder #T6, Mr. Craig Jacobson, was in process of performing submerged arc welding on the PJP AWS D1.5 TC-P5-S, a111-4 forging to b108 stiffener plate, designated as weld joint # W1-140, in the flat position. QA verified Mr. Jacobson was currently qualified for this process/position and noted that Mr. Jacobson was utilizing OIW approved welding procedure specification (WPS 4016). QA Inspector randomly recorded pre-heat temperatures of approximately 350 degrees Fahrenheit and noticed QC Inspector Rob Walters was present to monitor in-process welding parameters (amps/volts). QA Inspector noted that Mr. Walters had recorded in-process welding parameters of 350 amps and 30 volts, which appears to be in compliance with the applicable welding procedure specification.

Hinge-K Pipe Beam Fuse Assembly 120A-1: 6/16/09

a124-6 Half Fuse to a124-7 Half Fuse

QA Inspector noticed this fuse assembly 120A-1 was sitting idle in OIW Bay 6, pending the stainless steel overlay process.

Hinge-K Pipe Beam Fuse Assembly 120A-2: 6/16/09

a124-3 Half Fuse to a124-11 Half Fuse

QA Inspector noticed this assembly 120A-2 was sitting idle, pending transfer to A&G Machining for rough machining.

Hinge-K Pipe Beam Fuse Assembly 120A-3: 6/16/09

a124-12 Half Fuse to a124-10 Half Fuse

QA Inspector noticed that the stainless steel overlay welding (ESW) was complete on this fuse assembly 120A-3 and was sitting idle.

Hinge-K Pipe Beam Fuse Assembly 120A-4: 6/16/09

a124-13 Half Fuse to a124-4 Half Fuse

QA Inspector noticed that this fuse assembly 120A-4 was sitting idle.

Hinge-K Pipe Beam Fuse Assembly 120A-5: 6/16/09

a124-14 Half Fuse to a124-2 Half Fuse

A & G Machining

QA Inspector arrived at A & G Machining on this date, to randomly witness the in-process machining of this fuse assembly 120A-5.

QA Inspector noticed that A & G Machining had completed the third and final pass of .160" (4mm) and had recorded final random dimensional measurements. QA Inspector noticed that A&G Machining had measured the circumference of this fuse assembly 120A-5 and recorded the final outside diameter measurements, as shown below.

74.909" (1902.69mm)

74.911" (1902.74mm)

74.919" (1902.94mm)

74.916" (1902.87mm)

74.910" (1902.71mm)

---

## WELDING INSPECTION REPORT

( Continued Page 3 of 4 )

---

74.910" (1902.71mm)

74.900" (1902.46mm)

QA Inspector noticed that OIW QC Manager Tom Tomovick and project manager Bill Pender were previously present at A&G Machining, to verify these dimensional checks were in compliance with the contract requirements of 1900mm (+/- 3mm), final outside diameter.

QA Inspector spoke with A&G Machining and A&G explained this fuse assembly 120A-5 would be brought back to OIW fabrication shop on Thursday (6/18/09), for preparation of the stainless steel overlay welding process. QA Inspector noted that the fuse assembly 120A-6 would be transferred to A&G on 6/18/09, to begin rough machining. See attached picture below of fuse assembly 120A-5.

Hinge-K Pipe Beam Fuse Assembly 120A-6: 6/16/09

a124-1 Half Fuse to a124-9 Half Fuse

QA Inspector noticed this fuse assembly 120A-6 was sitting idle, pending transfer to A&G for rough machining.

Hinge-K Pipe Beam Fuse Assembly 120A-7: 6/16/09

a124-5 Half Fuse to a124-15 Half Fuse

QA Inspector noticed the half-fuse sub-assemblies identified as a124-5 and a124-15 were in-process of being fit-up in preparation for FCAW tacking and was sitting idle.

Hinge-K Pipe Beam Sub-Assembly a124-16: 6/16/09

a125 & b125 Ring Stiffeners to a124-16 Half Fuse

QA Inspector randomly witnessed OIW welder #O6, Mr. Tim O'Brian, performing submerged arc welding on the a125 internal ring stiffener to a124-15 half fuse, designated as weld joint #WM3-10. QA Inspector noticed the submerged arc welding was being performed in the flat position and verified Mr. Tim O'Brian was currently qualified for this welding process/position and randomly recorded pre-heat temperatures of approximately 350 F, which is in accordance with the applicable welding procedure specification (WPS 4020). QA Inspector randomly recorded in-process welding parameters of 380 amps and 25 volts and noticed that QC Inspector Rob Walters was present to randomly verify in-process welding parameters (amps/volts) and pre-heat temperatures. QA Inspector noted that the submerged arc welding being performed by Mr. Tim O'Brian, appeared to be in compliance with the applicable welding procedure specification (WPS 4020).

OIW South Storage Yard: 6/16/09

QA Inspector noticed the following half-fuse sub assembly was sitting idle, pending submerged arc welding on the internal stiffener rings, piece marks identified as a125 & b125: a124-8.

Material, Equipment, and Labor Tracking

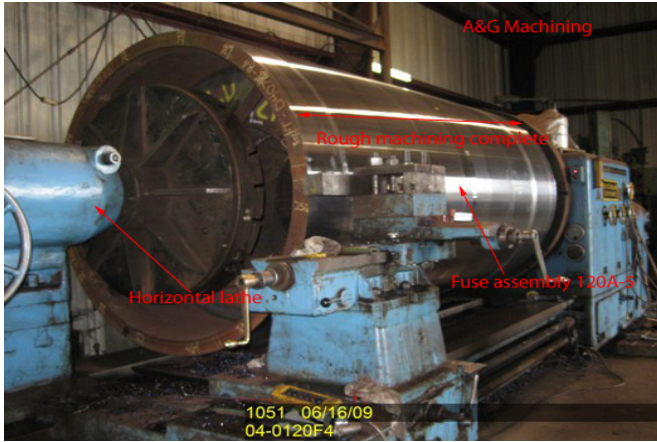
QA Inspector Sean Vance performed a verification of material, personnel and equipment involved with the project. The QA Inspector observed at Oregon Iron Works: 6 OIW production personnel and 2 QC Inspectors. The following personell were present at A&G: 1A&G supervisor and 1 A&G machinist

---

# WELDING INSPECTION REPORT

( Continued Page 4 of 4 )

---



## Summary of Conversations:

As noted above.

## Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

---

<b>Inspected By:</b>	Vance,Sean	Quality Assurance Inspector
<b>Reviewed By:</b>	Adame,Joe	QA Reviewer

---